

We claim:

✓ 1. A method of automatically detecting and correcting communication errors which result in an electronic shelf label's (ESL's) registers storing incorrect data, the method comprising the steps of:

- (a) transmitting a message to the ESL by a host computer;
- (b) waiting for a response to the message;
- (c) if the response is a negative acknowledgement or no response is received by the host computer, retransmitting the message;
- (d) if the response appears to be a positive acknowledgement, transmitting a verification message to verify the contents of the ESL's registers;
- (e) waiting for a response to the verification message; and
- (f) if the response to the verification message is positive acknowledgement, logging the message as successfully received.

✓ 2. The method of claim 1 further comprising the step of:

- (g) if the response to the verification message is a negative acknowledgement or no response is received by the host computer, retransmitting the message.

✓ 3. The method of claim 2 further comprising the step of:

- (h) if the response to the retransmitted message is a negative acknowledgement or no response is received by the host computer, providing an indication of a communication problem.

✓ 4. The method of claim 1 wherein the message is a command to update at least one of the ESL's registers.

✓ 5. The method of claim 1 wherein the verification message is a data bedcheck message.

✓ 6. The method of claim 1 wherein the step of transmitting a verification message immediately follows the receipt of the positive acknowledgement.

✓ 7. An electronic shelf label (ESL) system comprising:
an ESL for displaying information relating to an item associated with the ESL, the ESL including a plurality of registers for storing information controlling the content and formatting of the information displayed; and

a host computer system transmitting a message to the ESL, waiting for a response to the message, retransmitting the message if the response is a negative acknowledgement or no response is received, and transmitting a verification message to verify the contents of the ESL's registers if the response appears to be a positive acknowledgement.

✓ 8. The system of claim 7 wherein the host computer waits for a response to the verification message, and if the response to the verification message is positive acknowledgement, logging the message as successfully received.

✓ 9. The system of claim 7 wherein the message is a command to update at least one of the ESL's registers.

✓ 10. The system of claim 7 wherein the verification message is a data bedcheck message.

✓ 11. The system of claim 7 wherein host computer transmits the verification message immediately following the receipt of the positive acknowledgement.

✓ 12. A method of automatically detecting and correcting communication errors which result in an electronic shelf label's (ESL's) registers storing incorrect data, the method comprising the steps of:

(a) transmitting a message containing data to be stored in one or more registers of the ESL by a host computer;

(b) waiting for a response to the message;

(c) if the response is a negative acknowledgement that the data was not correctly stored or no response is received by the host computer, retransmitting the message;

(d) if the response appears to be a positive acknowledgement that the message was received and the data correctly stored, transmitting a verification message to verify the contents of the ESL's registers;

(e) waiting for a response to the verification message; and

(f) if the response to the verification message is positive acknowledgement verifying that the ESL's registers contained the expected data, logging the message as successfully received.

✓ 13. The method of claim 12 further comprising the step of:

(g) if the response to the verification message is a negative acknowledgement or no response is received by the host computer, retransmitting the message.

✓ 14. The method of claim 13 further comprising the step of:

(h) if the response to the retransmitted message is a negative acknowledgement or no response is received by the host computer, providing an indication of a communication problem.

15. The method of claim 12 wherein the step of transmitting a verification message immediately follows the receipt of the positive acknowledgement.

16. The method of claim 13 wherein steps (a) through (g) are repeated a plurality of times and further comprising the step of:

tabulating statistical data of the number of times the response was a negative acknowledgement or no response was received; and

providing an error indication of the number exceeds a threshold.